ECM-A50M

3.5” AMD eOntario Module

Quick Installation Guide

2nd Ed – 3 March 2012

Part No. E2017351801R

FCC Statement

THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support

We want you to get the maximum performance from your products. So if you run into technical difficulties, we are here to help. For the most frequently asked questions, you can easily find answers in your product documentation. These answers are normally a lot more detailed than the ones we can give over the phone. So please consult the user's manual

first.
To receive the latest version of the user's manual; please visit our Web site at:
http://www.avalue.com.tw/

If you still cannot find the answer, gather all the information or questions that apply to your problem, and with the product close at hand, call your dealer. Our dealers are well trained and ready to give you the support you need to get the most from your Avalue's products. In fact, most problems reported are minor and are able to be easily solved over the phone.
In addition, free technical support is available from Avalue's engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

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1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Always note that improper disassembling action could cause damage to the motherboard. We suggest not removing the heatsink without correct instructions in any circumstance. If you really have to do this, please contact us for further support.

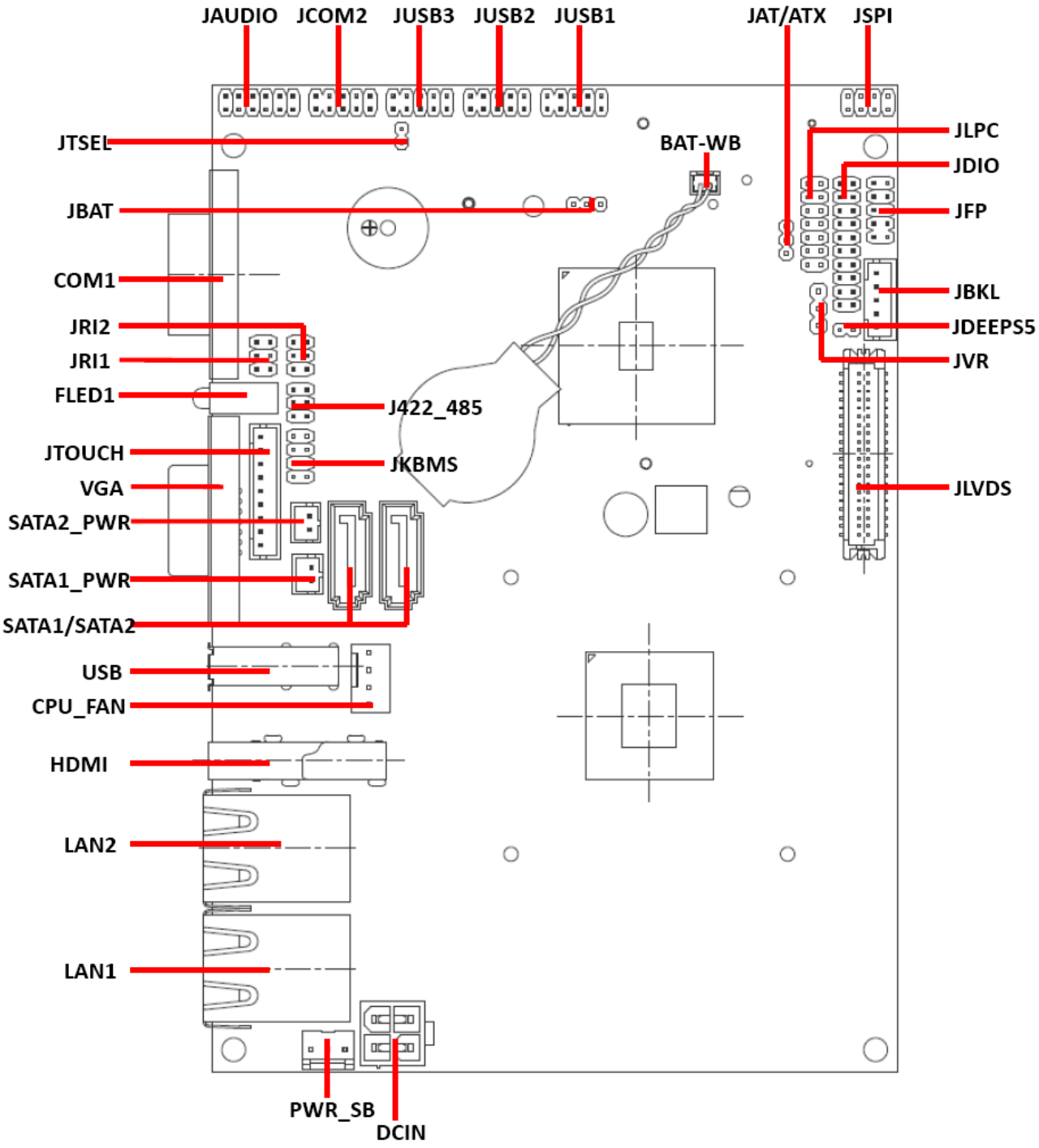
1.2 Packing List

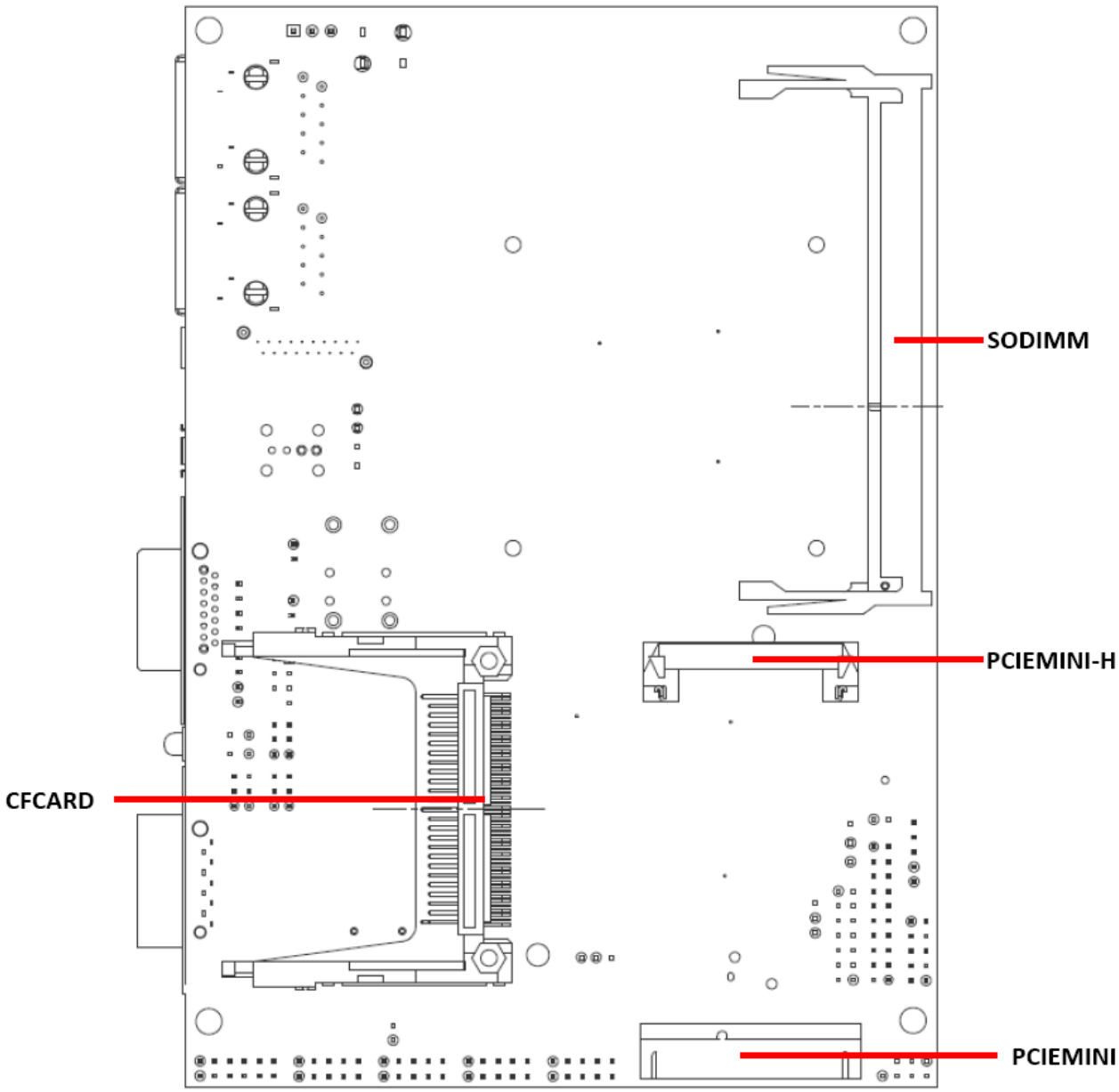
Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x 3.5” ECM-A50M Micro Module
- 1 x Quick Installation Guide for ECM-A50M
- 1 x DVD-ROM contains the followings:
  - User’s Manual (this manual in PDF file)
  - Ethernet driver and utilities
  - VGA drivers and utilities
  - Audio drivers and utilities
- 1 x Cable set contains the followings:
  - 1 x Audio cable (12pin, 2.0mm pitch)
  - 1 x USB cable (10P/2.54mm-10P/2.0mm)
  - 1 x Serial ATA cable (7-pin, standard)
  - 1 x Serial ATA cable (15-pin, 2P/2.0mm)
  - 1 x Flat Cable 9P(M)-Dupont 10P/2.0mm 17cm
- 4 x D-sub Jack Screws
- DIP AUX-032 A1 W/Audio/4USB

2. Hardware Configuration

2.1 Product Overview

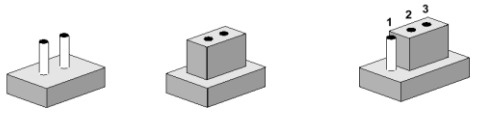



SODIMM
PCIEMINI-H
CFCARD
PCIEMINI

2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board’s jumpers and connectors.

Jumpers

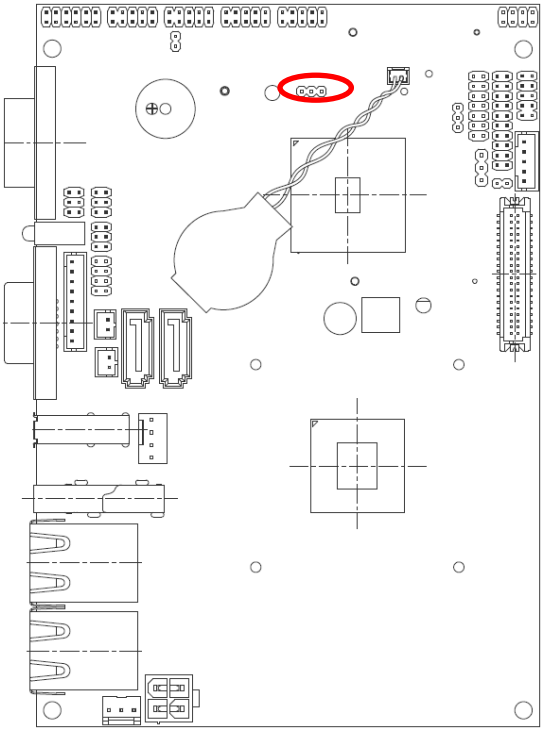
Label	Function	Note
JBAT1	Clear CMOS	3 x 1 header, pitch 2.00 mm
JRI1	Serial port 1 (COM1) signal selector	3 x 2 header, pitch 2.0 mm
JRI2	Serial port 2 (COM2) signal selector	3 x 2 header, pitch 2.0 mm
JAT/ATX	AT/ ATX power Input selector	3 x 1 header, pitch 2.0 mm
JDEEPS5	ErP power saving mode selector	2 x 1 header, pitch 2.0 mm
JTSEL	Touch Selector	2 x 1 header, pitch 2.0 mm

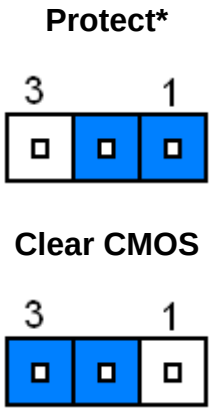
Connectors

Label	Function	Note
BAT-WB	Battery connector	2 x 1 wafer, pitch 1.25 mm
COM1	Serial port 1 connector	D-sub 9-pin, male
CFCARD	CF card connector	
CPU_FAN1	CPU fan connector	4 x 1 wafer
DCIN	Power connector	2 x 2 wafer, pitch 4.2 mm
FLED1	LED connector	
HDMI	HDMI connector	19 pin
J422/485	Serial port 1 in RS-422/485 mode	3 x 2 header, pitch 2.0 mm
JAUDIO	Audio connector	6 x 2 header, pitch 2.0 mm
JBKL	LCD inverter connector	5 x 1 wafer, pitch 2.0 mm
JCOM2	Serial port 2 connector	5 x 2 header, pitch 2.0 mm
JDIO	General purpose I/O connector	10 x 2 header, pitch 2.0 mm
JFP	Miscellaneous setting connector	5 x 2 header, pitch 2.0 mm
JKBMS	Keyboard & Mouse connector	4 x 2 header, pitch 2.0 mm
JLPC	Low pin count interface connector	7 x 2 header, pitch 2.0 mm
JLVDS	LVDS connector	20 x 2 header, pitch 2.0 mm
JSPI	SPI connector	4 x 2 header, pitch 2.0 mm
JTOUCH	Touch Connector	9 X 1 wafer box, pitch 2.00 mm
JUSB1	USB connector 0 & 1	5 x 2 header, pitch 2.0 mm
JUSB2	USB connector 4 & 5	5 x 2 header, pitch 2.0 mm
JUSB3	USB connector 2 & 3	5 x 2 header, pitch 2.0 mm
JVR	LCD backlight brightness adjustment	3 x 1 header, pitch 2.54 mm
LAN1/ LAN2	RJ-45 Ethernet connector	
PCIEMINI	Mini PCI express connector	52 pin
PCIEMINI-H	Mini PCI express latch	
PWR_SB	+V5A connector in ATX	3 x 1 wafer, pitch 2.54 mm
SATA1_PWR	SATA1 power connector	2 x 1 wafer, pitch 2.0 mm
SATA2_PWR	SATA2 power connector	2 x 1 wafer, pitch 2.0 mm
SATA1	Serial ATA connector 1	
SATA2	Serial ATA connector 2	
SODIMM	204-pin DDR3 SODIMM connector	
USB	USB connector 6	
VGA	VGA connector	D-sub 15-pin, female

2.3 Setting Jumpers & Connectors

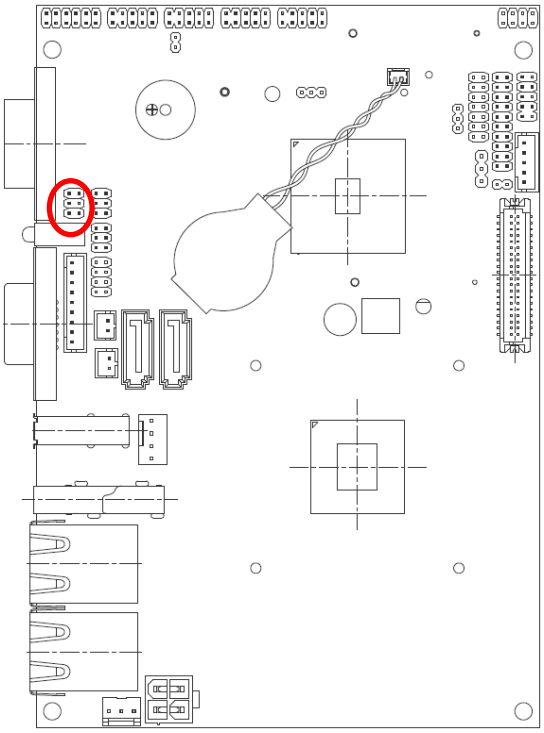
2.3.1 Clear CMOS (JBAT1)

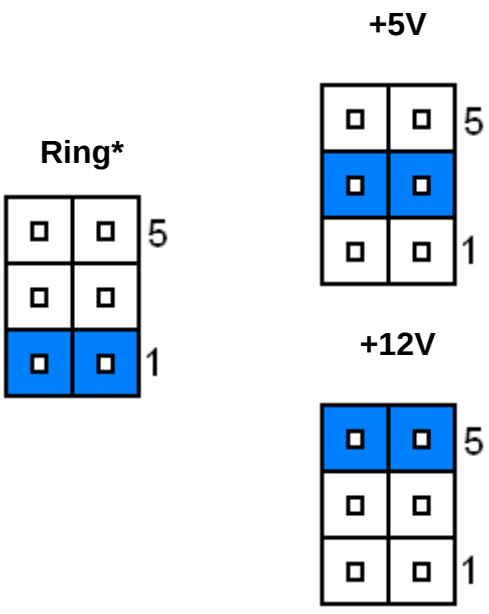




*** Default**

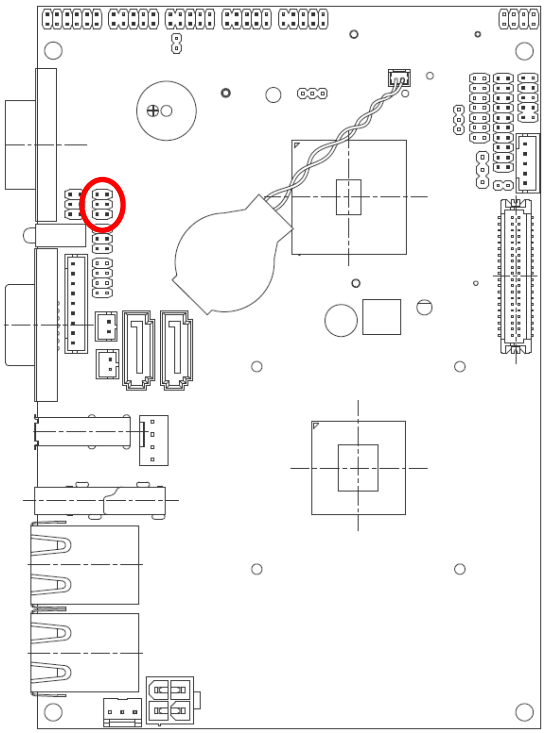
2.3.2 Serial port 1 (COM1) signal selector (JRI1)

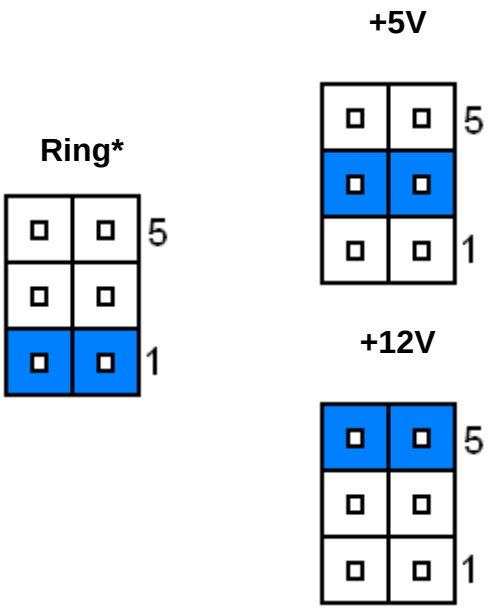




*** Default**

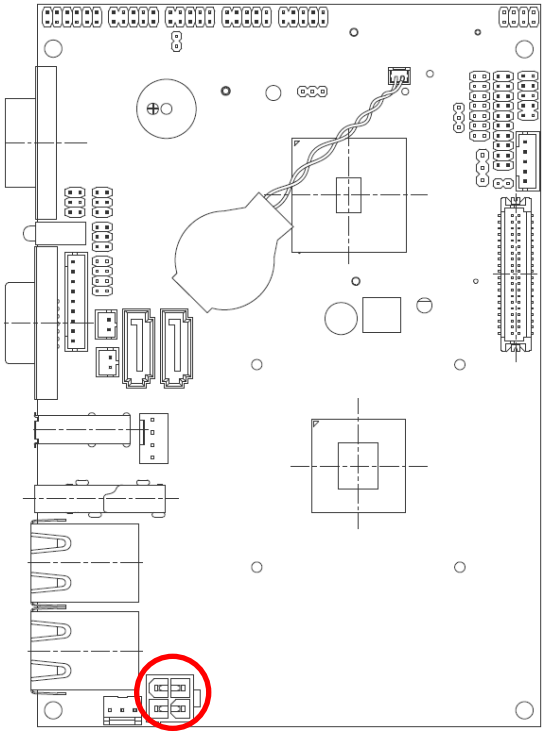
2.3.3 Serial port 2 (COM2) signal selector (JRI2)

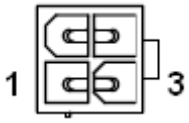




*** Default**

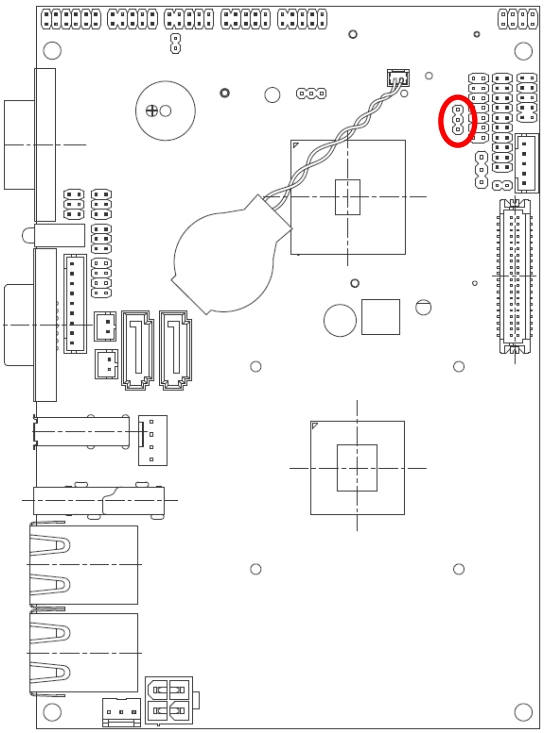
2.3.4 Power connector (DCIN)



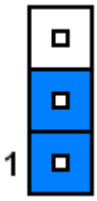


Signal	PIN	PIN	Signal
GND	2	4	VIN=12V
GND	1	3	VIN=12V

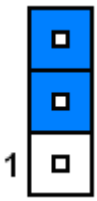
2.3.5 AT/ ATX power Input selector (JAT/ATX)



AT*

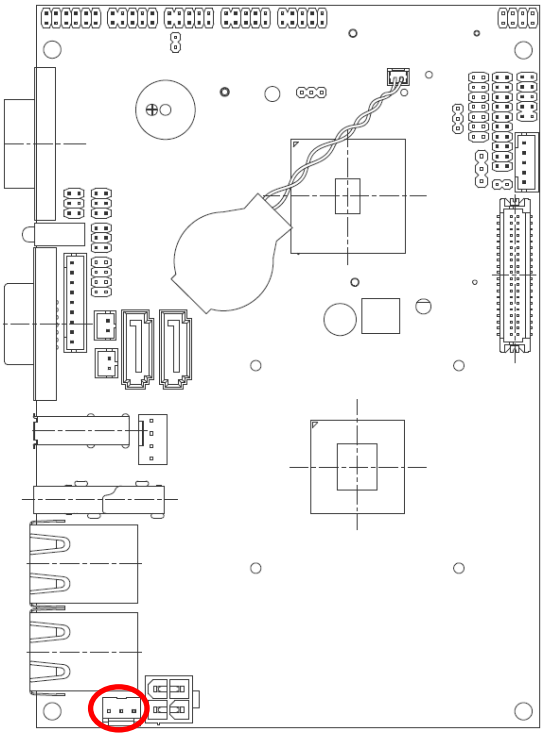


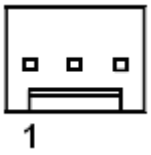
ATX



*** Default**

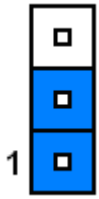
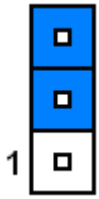
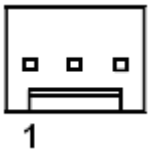
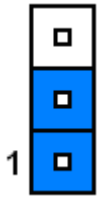
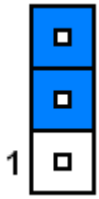
2.3.6 +V5A connector in ATX (PWR_SB)



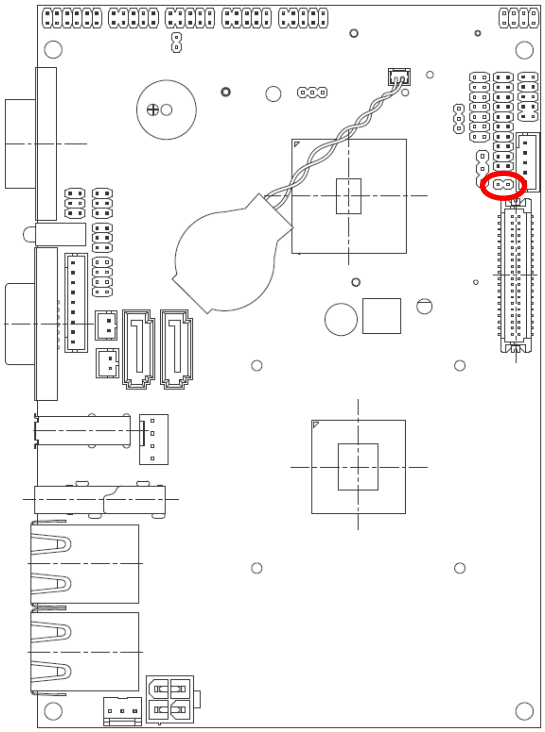


Signal	PIN
PSON	1
GND	2
+V5A	3

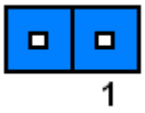
2.3.6.1 Signal Description –AT/ATX mode & Input power type

Input power type	Power-ON Mode	Description
AT Type (DCIN)	**AT Mode** (JAT/ATX)  	Use AT type power input, and set the board in AT mode.
	ATX Mode (JAT/ATX)  	Use AT type power input, and set the board in ATX mode.
ATX Type (PWR_SB)  	**AT Mode** (JAT/ATX)  	Use ATX type power input, and set the board in AT mode.
	ATX Mode (JAT/ATX)  	Use ATX type power input, and set the board in ATX mode.

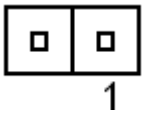
2.3.7 ErP Power saving mode selector (JDEEPS5)



DEEPS5=0*



DEEPS5=1



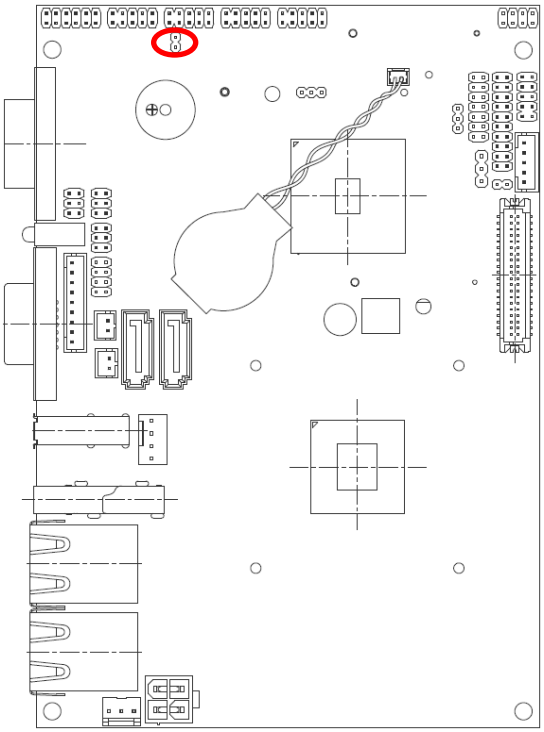
Signal	PIN
DEEPS5_SEL	1
GND	2

*** Default**

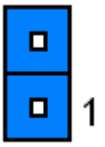
2.3.7.1 ErP Power saving mode selector setting details

Settings	Description
DEEPS5=0	System will not enter deep S5 state after AC power on, it remains in normal ACPI S5 state.
DEEPS5=1	System will enter deep S5 state 6 sec after AC power on.

2.3.8 Touch selector (JTSEL)



4/8W*



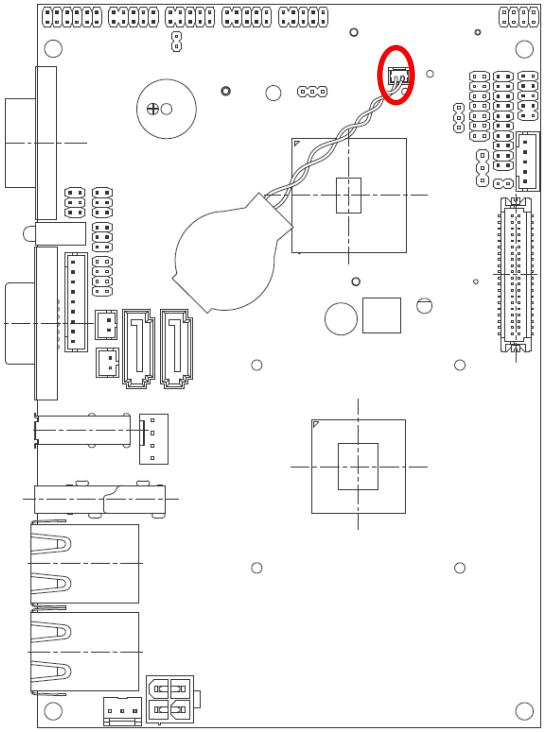
5W

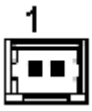
Signal	PIN
CSENSE	2
CY-	1

*** Default**

JTOUCH	4-WIRE (5~8)	5-WIRE (4~8)	8-WIRE (1~8)
1	N/A	N/A	Right Sense
2	N/A	N/A	Left Sense
3	N/A	N/A	Bottom Sense
4	N/A	Sense	Top Sense
5	Right	LR	Right Excite
6	Left	LL	Left Excite
7	Bottom	UR	Bottom Excite
8	Top	UL	Top Excite
9	GND	GND	GND

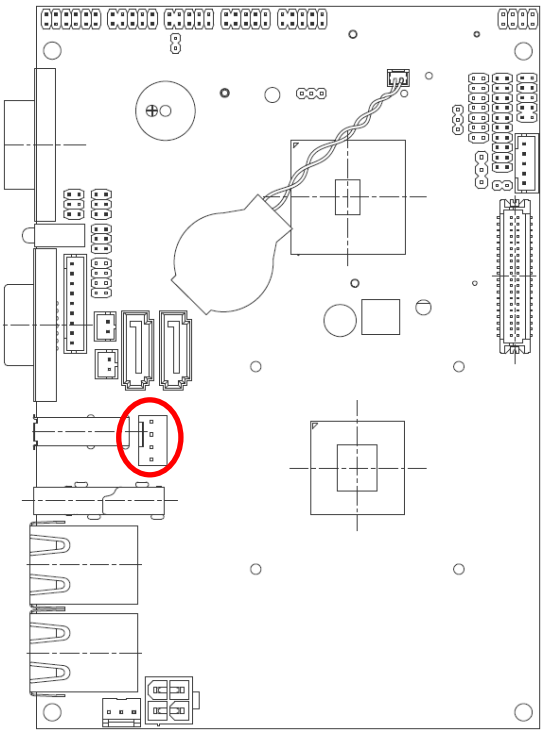
2.3.9 Battery connector (BAT-WB)

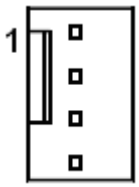




Signal	PIN
VBAT	1
GND	2

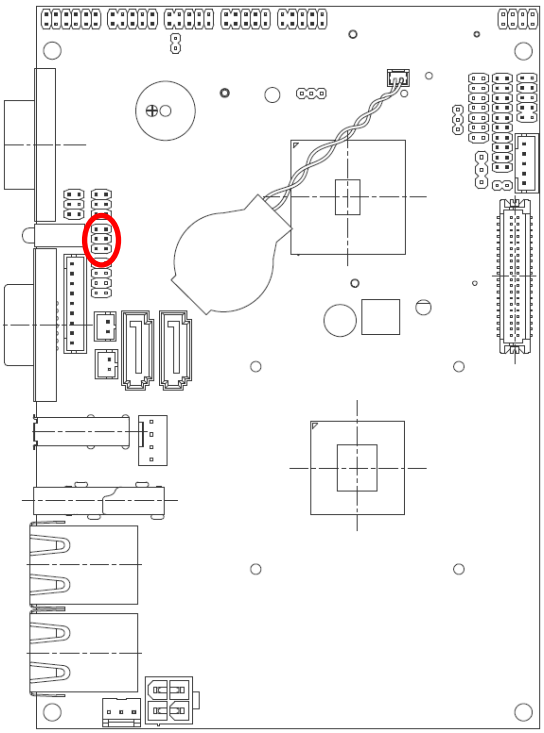
2.3.10 CPU fan connector (CPU_FAN)

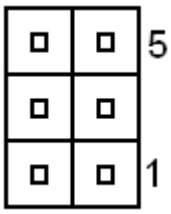




Signal	PIN
GND	1
+V12S	2
SIO_FANI	3
SIO_FANO	4

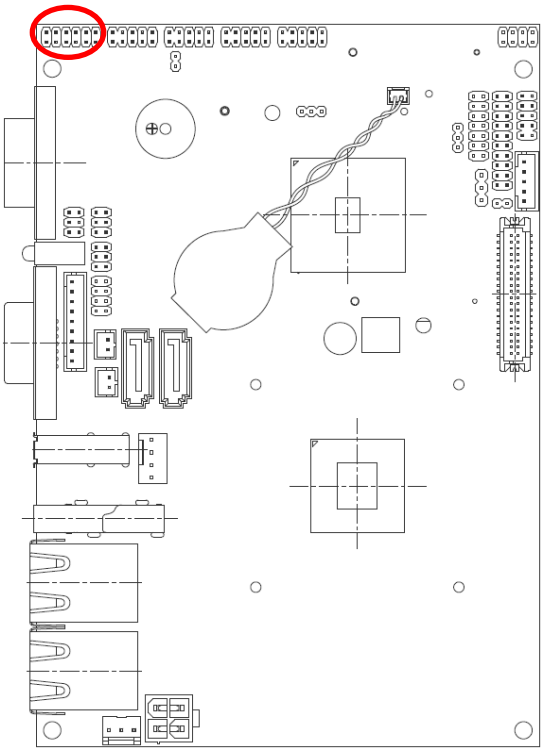
2.3.11 Serial port 1 in RS-422/485 mode (J422/485)

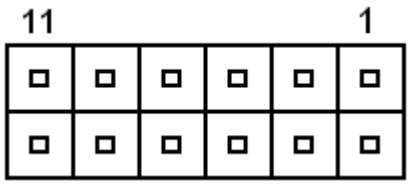




Signal	PIN	PIN	Signal
GND	6	5	+V5S
422_RXDP	4	3	485-422_TXDP
422_RXDN	2	1	485-422_TXDN

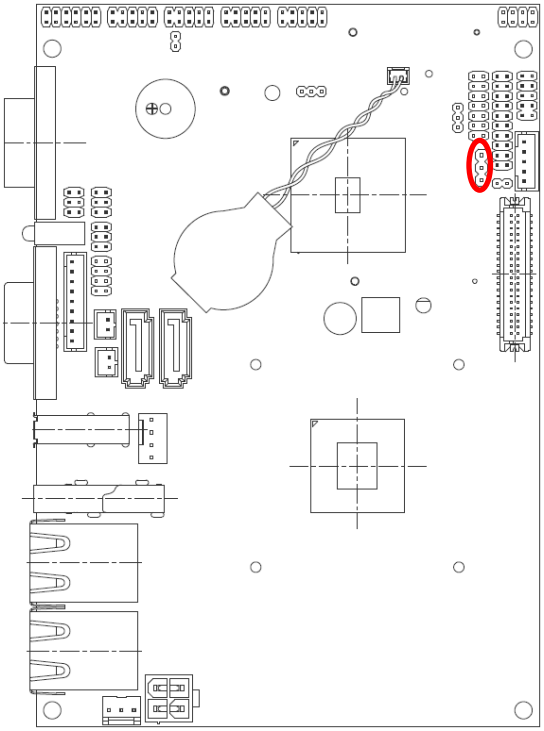
2.3.12 Audio connector (JAUDIO)

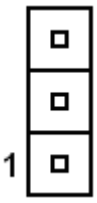




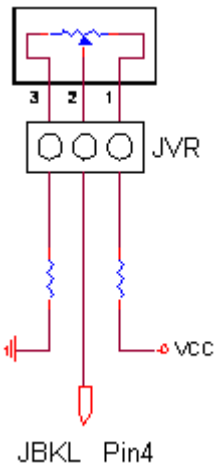
Signal	PIN	PIN	Signal
GND	12	11	MIC1_JD
LIN1_JD	10	9	FRONT_JD
MIC1_L	8	7	MIC1_R
LIN1_L	6	5	LIN1_R
GND	4	3	GND
FRONT_L	2	1	FRONT_R

2.3.13 LCD backlight brightness adjustment (JVR)





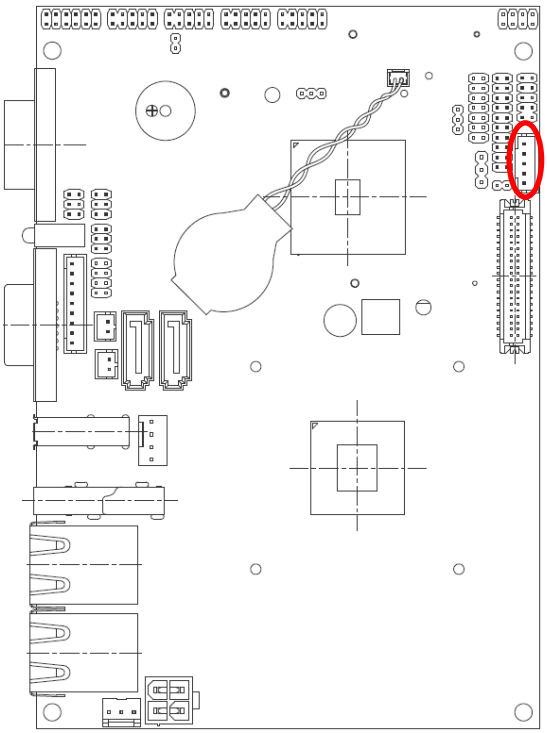
Signal	PIN
GND	3
LVDS_BLKT_CTRL	2
+5V	1

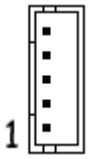


Variation Resistor

(Recommended: 4.7KΩ, >1/16W)

2.3.14 LCD Inverter Connector (JBKL)





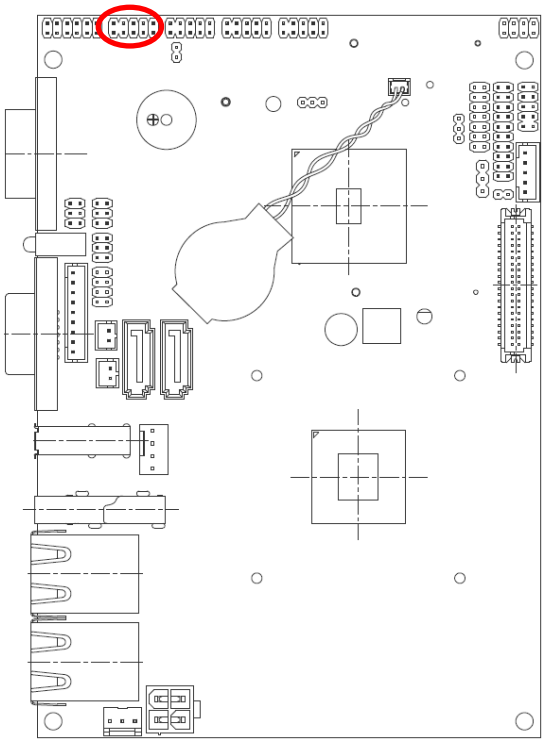
Signal	PIN
+5V	5
BRIADJ	4
BKLEN	3
GND	2
+12V	1

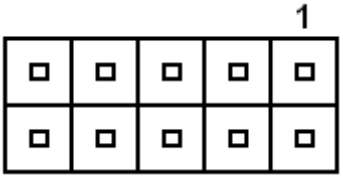
Note:
For inverters with adjustable Backlight function, it is possible to control the LCD brightness through the VR signal controlled by **JVR**. Please see the **JVR** section for detailed circuitry information.

2.3.14.1 Signal Description – LCD Inverter Connector (JBKL)

Signal	Signal Description
BRIADJ	Vadj = 0.75V ~ 4.25V (Recommended: 4.7KΩ, >1/16W)
BKLEN	LCD backlight ON/OFF control signal

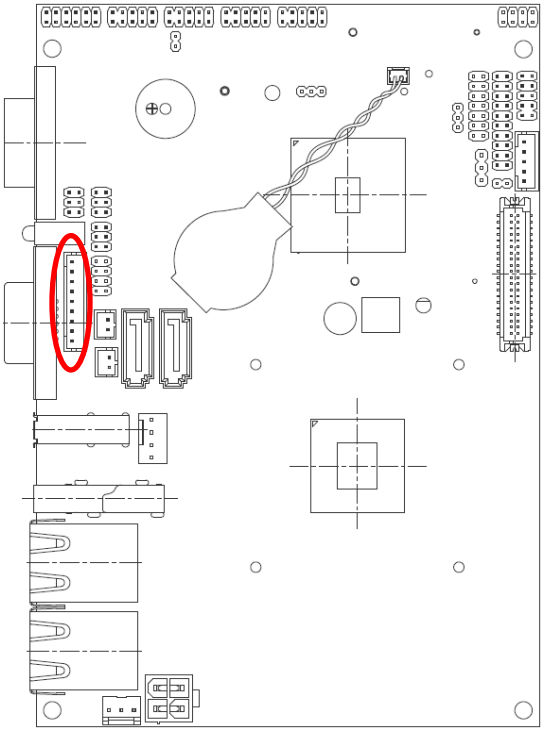
2.3.15 Serial port 2 connector (JCOM2)





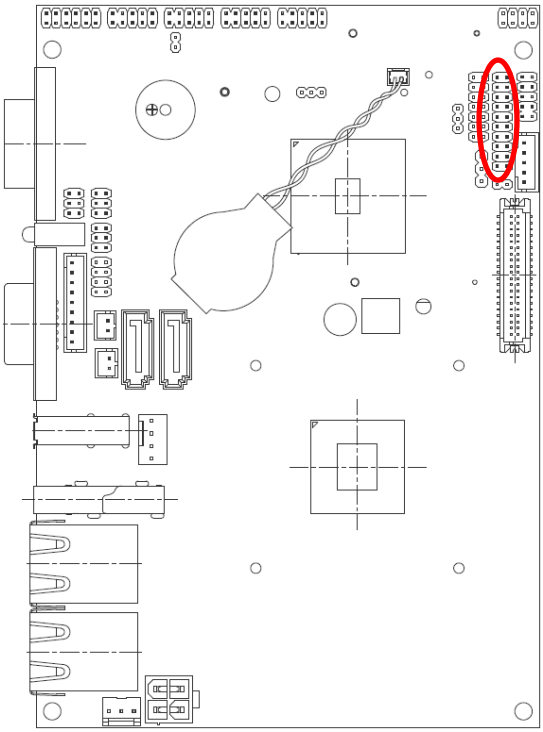
Signal	PIN	PIN	Signal
DCD	1	2	RXD
TXD	3	4	DTR
GND		6	DSR
RTS	7	8	CTS
RI2	9	10	NC

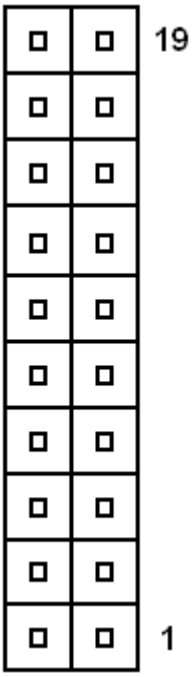
2.3.16 Touch connector (JTOUCH)



Signal	PIN	4-Wire	5-Wire	8-Wire
TGND	9	GND	GND	GND
CY-	8	Top	UL	Top Excite
CY+	7	Bottom	UR	Bottom Excite
CX-	6	Left	LL	Left Excite
CX+	5	Right	LR	Right Excite
CSENSE	4	NA	Sense	Top Sense
CY+	3	NA	NA	Bottom Sense
CX-	2	NA	NA	Left Sense
CX+	1	NA	NA	Right Sense

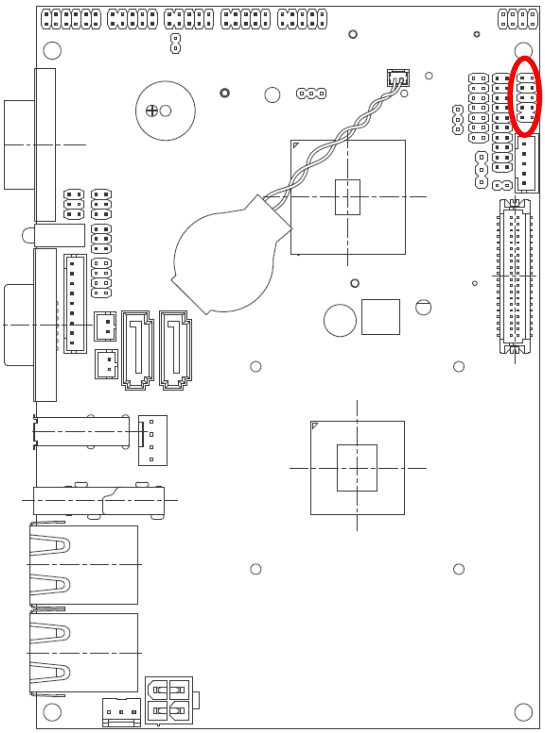
2.3.17 General purpose I/O connector (JDIO)

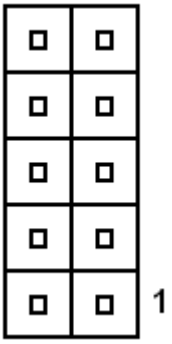




Signal	PIN	PIN	Signal
+5V	20	19	GND
SMB_DATA_S	18	17	SMB_CLK_S
GP17	16	15	GP27
GP16	14	13	GP26
GP15	12	11	GP25
GP14	10	9	GP24
GP13	8	7	GP23
GP12	6	5	GP22
GP11	4	3	GP21
GP10	2	1	GP20

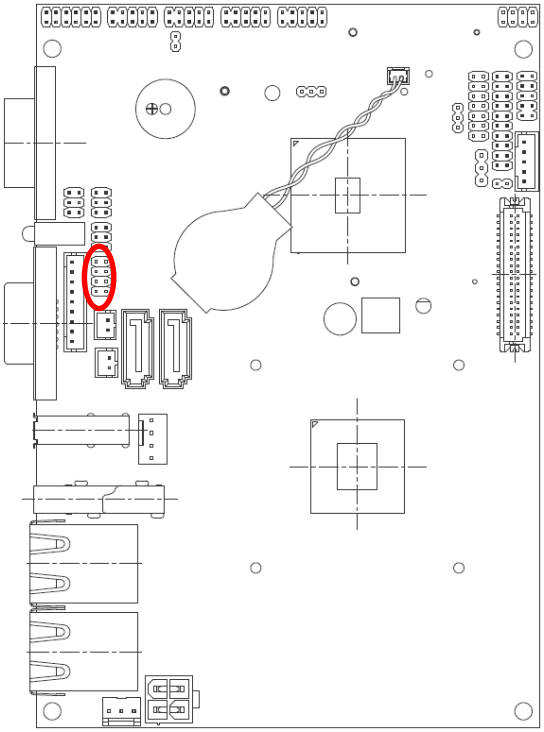
2.3.18 Miscellaneous setting connector (JFP)





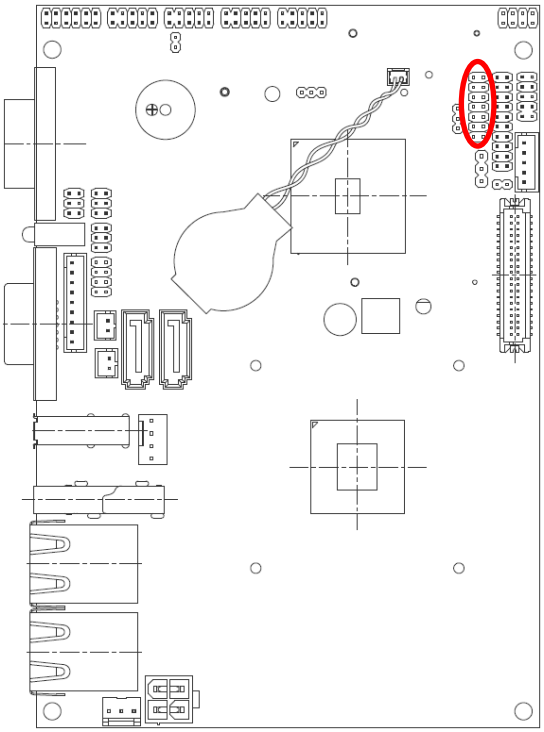
Signal	PIN	PIN	Signal
GND	10	9	CASEOPEN#
+3.3V	8	7	HD_LED#
PWR_LED#	6	5	3.3V
GND	4	3	SYS_RST#
GND	2	1	EXT_PWRBTN#

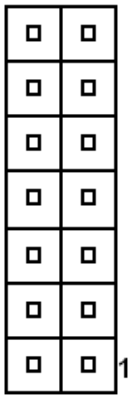
2.3.19 Keyboard & Mouse connector (JKBMS)



Signal	PIN	PIN	Signal
		7	NC
MS_CLK#	6	5	MS_DAT#
+VCC_KB	4	3	GND
KB_CLK#	2	1	KB_DAT#

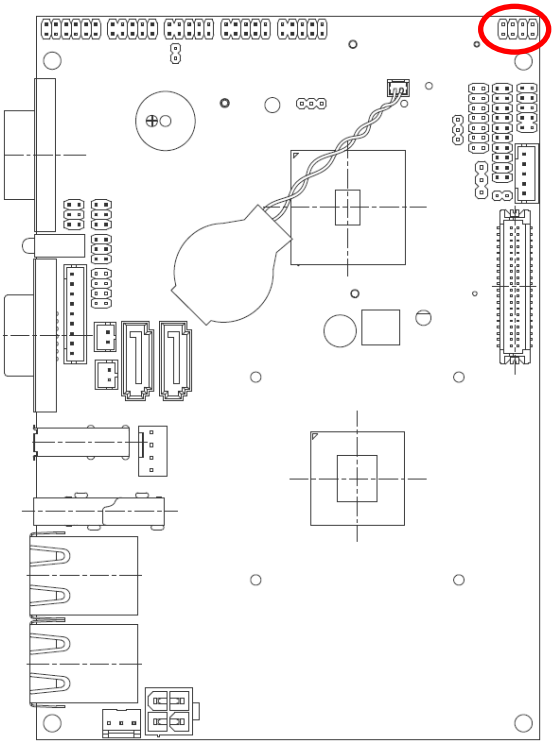
2.3.20 Low pin count interface connector (JLPC)

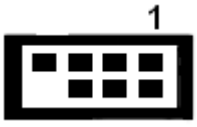




Signal	PIN	PIN	Signal
LPC_LDRQ#	14	13	+5V
GND	12	11	+5V
GND	10	9	LPC_SERIRQ
CLK_JLPC	8	7	LPC_AD3
LPC_FRAME#	6	5	LPC_AD2
A_RST#	4	3	LPC_AD1
+3.3V	2	1	LPC_AD0

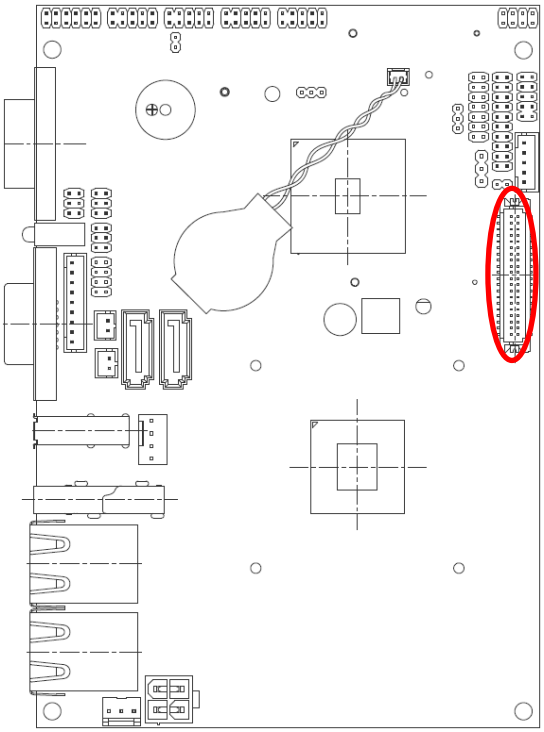
2.3.21 SPI connector (JSPI)

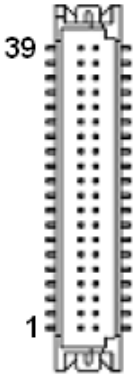




Signal	PIN	PIN	Signal
+3.3V	1	2	GND
CS#	3	4	SPI_CLK
DI_R	5	6	SPI_DO
HOLD#	7		

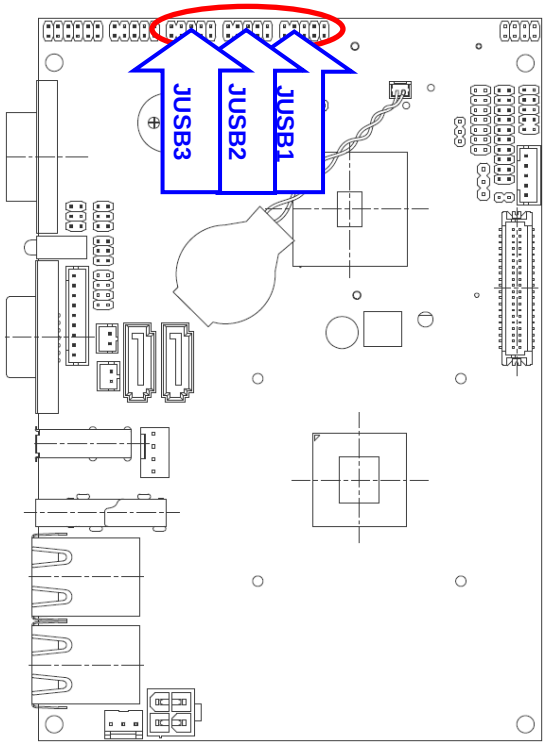
2.3.22 LVDS connector (JLVDS)

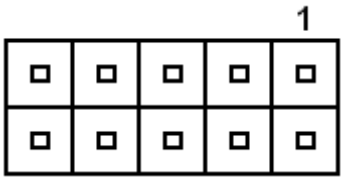




Signal	PIN	PIN	Signal
+12V	39	40	+12V
GND	37	38	GND
LVDSB_CLK#	35	36	LVDSA_CLK#
LVDSB_CLK	33	34	LVDSA_CLK
GND	31	32	GND
LVDSB_DATA3#	29	30	LVDSB_DATA2#
LVDSB_DATA3	27	28	LVDSB_DATA2
GND	25	26	GND
LVDSB_DATA1#	23	24	LVDSB_DATA0#
LVDSB_DATA1	21	22	LVDSB_DATA0
GND	19	20	GND
LVDSA_DATA3#	17	18	LVDSA_DATA2#
LVDSA_DATA3	15	16	LVDSA_DATA2
GND	13	14	GND
LVDSA_DATA1#	11	12	LVDSA_DATA0#
LVDSA_DATA1	9	10	LVDSA_DATA0
GND	7	8	GND
LVDS_DDC_CLK	5	6	LVDS_DDC_DATA
+3.3V	3	4	+5V
+3.3V	1	2	+5V

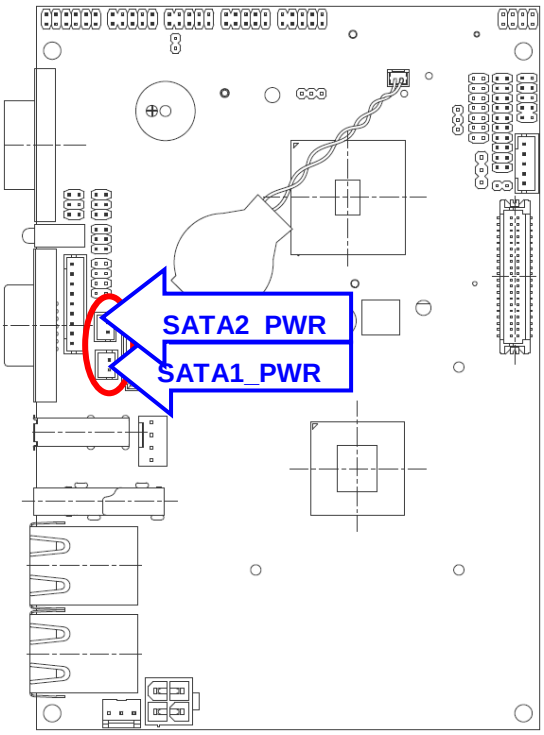
2.3.23 USB connector 0 & 1/ 4 & 5/ 2 & 3 (JUSB1/2/3)

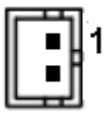




Signal	PIN	PIN	Signal
+5V	1	2	GND
N1/ N3/ N5	3	4	GND
P1/ P3/ P5	5	6	P0/ P2/P4
GND	7	8	N0/ N2/N4
GND	9	10	+5V

2.3.24 SATA1/2 Power connector (SATA1_PWR/ SATA2_PWR)





Signal	PIN
GND	1
+5V	2